

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1-6. (Cancelled)

7. (Currently amended): A method for making a high fill factor image array comprising the steps:

providing a plurality of source-drain metal contacts on a substrate;

depositing a first passivation layer over the plurality of source-drain metal contacts and the substrate;

depositing a second passivation layer that suppresses lateral leakage current over the first passivation layer;

opening a plurality of via holes through the first and second passivation layers to the plurality of source-drain metal contacts;

depositing a layer of conductive material over the plurality of source-drain metal contacts and the second passivation layer;

depositing a first doped a-Si layer over the layer of conductive material;

patterning the first doped a-Si layer and the layer of conductive material to form collection electrodes;

depositing a continuous layer of i a-Si disposed on the second passivation layer and the first doped a-Si layer;

depositing a continuous second layer of doped a-Si over the continuous layer of i a-Si;

depositing ~~and patterning~~ an upper conductive layer over the second layer of doped a-Si; and

patterning to form the image array.

8. (Original): The method for making a high fill factor image array according to claim 7, wherein the first passivation layer comprises silicon oxynitride, BCB, or a polyimide.

9. (Original): The method for making a high fill factor image array according to claim 7, wherein the second passivation layer is an oxide.

10. (Previously presented): The method for making a high fill factor image array according to claim 7, wherein the second passivation layer has a thickness of about 1000 Å.

11. (Currently amended): A high fill factor image array formed by:  
providing a plurality of source-drain metal contacts on a substrate;  
depositing a first passivation layer over the plurality of source-drain metal contacts and the substrate;  
depositing a second passivation layer over the first passivation layer that suppresses lateral leakage current;  
opening a plurality of via holes through the first and second passivation layers over the plurality of source-drain metal contacts;  
depositing a layer of conductive material on the plurality of source-drain metal contacts and over the second passivation layer;  
depositing a first doped a-Si layer over the layer of conductive material;

patterning the first doped a-Si layer and the layer of conductive material to form collection electrodes;

depositing a continuous layer of i a-Si disposed on the second passivation layer and over the first doped a-Si layer;

depositing a continuous second layer of doped a-Si over the continuous layer of i a-Si;

depositing ~~and patterning~~ an upper conductive layer over the continuous second layer of doped a-Si; and

patterning to form the image array.

12. (Original): The high fill factor image array of claim 11, wherein the first passivation layer comprises at least one of silicon oxynitride, BCB, or a polyimide.

13. (Original): The high fill factor image array of claim 11, wherein the second passivation layer is an oxide.

14. (Previously Amended): The high fill factor image array of claim 11, wherein the second passivation layer has a thickness of about 1000 Å.

15. (Previously presented): The high fill factor image array of claim 11, wherein a thickness of the second passivation layer is less than a thickness of the first passivation layer.

16. (Previously presented): A method for making a high fill factor image array comprising:

providing a source-drain metal contact;  
depositing a first passivation layer over the source-drain metal contact;  
depositing a second passivation layer over the first passivation layer;  
opening a via hole through the first and second passivation layers to expose the source-drain metal contact;  
depositing a layer of conductive material on the source-drain metal contact, such that the layer of conductive material makes electrical contact with the source-drain metal contact;  
depositing a first doped a-Si layer on the layer of conductive material;  
patterning the a-Si layer and the layer of conductive material to form a collection electrode;  
depositing sensor material comprising a continuous layer of i a-Si over the collection electrode and at least a portion of the second passivation layer;  
depositing a continuous layer of doped a-Si over the continuous layer of i a-Si;  
depositing a conductive layer over the continuous layer of doped a-Si; and  
patterning conductive layer to form an upper electrode.

17. (Previously presented): The method for making a high fill factor image array according to claim 16, wherein the first passivation layer comprises silicon oxynitride, BCB, or a polyamide.

18. (Previously presented): The method for making a high fill factor image array according to claim 16, wherein the second passivation layer is an oxide.

19. (Previously presented): The method for making a high fill factor image array according to claim 16, wherein the second passivation layer has a thickness of about 1000 Å.